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PTO/SB/05 (08/00)

Approved for use through 10/31/2002, OMB 0651-0032

**UTILITY  
PATENT APPLICATION  
TRANSMITTAL**

(Only for new nonprovisional applications under 37 1.53(b))

Attorney Docket No. 04645.0664

First Inventor Zayatz

Title Protection Device Having A Sleeve And Method Of

Assembling A Battery With A Protection Device And An Electrical Component

Express Mail Label No. EK522132639US

**APPLICATION ELEMENTS**

See MPEP chapter 600 concerning utility patent application contents

ADDRESS TO: Assistant Commissioner for Patents  
Box Patent Application  
Washington, D.C. 20231

1. ☒ Fee Transmittal Form  
(Submit an original, and a duplicate for fee processing)
2. ☐ Applicant claims small entity status.  
See CFR 1.27.
3. ☒ Specification [Total Pages / 19 / ]  
(preferred arrangement set forth below)
  - Descriptive title of the invention
  - Cross Reference to Related Applications
  - Statement Regarding Fed sponsored R&D
  - Reference to sequence listing, a table, or a computer program listing appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
4. ☒ Drawing(s) (35 USC 113) [Total Sheets / 4 / ]
5. ☒ Oath or Declaration [Total Pages / 2 / ]
  - a. ☒ Newly executed (original or copy)
  - b. ☐ Copy from a prior application (37 CFR 1.63(d))  
(for continuation/divisional with Box 17 completed)
    - i. ☐ **DELETION OF INVENTOR(S)**  
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all necessary)
  - a. ☐ Computer Readable Form (CRF)
  - b. ☐ Specification Sequence Listing on:
    - i. ☐ CD-ROM or CD-R (2 copies); or
    - ii. ☐ paper
  - c. ☐ Statements verifying identity of above copies

**ACCOMPANYING APPLICATION PARTS**

9. ☒ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement ☐ Power of Attorney  
(when there is an assignee)
11. ☐ English Translation Document (if applicable)
12. ☐ Information Disclosure ☐ Copies of IDS  
Statement (IDS)/PTO-1449 Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
16. ☒ Other: check for \$690.00 and for \$40.00

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of the prior application No: \_\_\_/\_\_\_

Prior application information: Examiner: \_\_\_\_\_ Group/Art Unit: \_\_\_\_\_

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

**18. CORRESPONDENCE ADDRESS**

NAME	R. Kent Roberts				
	Hodgson, Russ, Andrews, Woods & Goodyear, LLP				
ADDRESS	One M&T Plaza, Suite 2000				
CITY	Buffalo	STATE	New York	ZIP CODE	14203-2391
COUNTRY	United States of America	TELEPHONE	(716) 856-4000	FAX	(716) 849-0349

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Date of Deposit September 22, 2000

I hereby Certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

R. Kent Roberts

Name

Signature

BFLODOCS:442960

# FEE TRANSMITTAL for FY 2000

*Patent Fees are subject to annual revision.*

<b>FEE TRANSMITTAL for FY 2000</b>  <i>Patent Fees are subject to annual revision.</i>		Application Number			
		Filing Date		9/22/2000	
		First Named Inventor		Zayatz	
		Examiner Name			
		Group/Art Unit			
TOTAL AMOUNT OF PAYMENT		(\$)730.		Attorney Docket Number	04645.0664

1. ☒ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

### 3. ADDITIONAL FEES

Deposit Account Number: 08-2442  
 Deposit Account Name:  
 Hodgson, Russ, Andrews, Woods & Goodyear, LLP

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid
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☒ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

105	130	205	65	Surcharge - late filing fee or oath	\$
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☐ Applicant claims small entity status. See 37 CFR 1.27.

127	50	227	25	Surcharge - late provisional filing fee or cover sheet	\$
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### 2. Payment Enclosed:

☒ Check ☐ Credit Card ☐ Money Order ☐ Other

139	130	139	130	Non-English specification	\$
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### FEE CALCULATION

147	2,520	147	2,520	For filing a request for reexamination	\$
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### 1. FILING FEE

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
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112	920*	112	920*	Requesting Publication of SIR prior to Examiner Action	\$
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113	1,840*	113	1,840*	Requesting Publication of SIR after Examiner Action	\$
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115	110	215	55	Extension for reply within first month	\$
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116	380	216	190	Extension for reply within second month	\$
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117	870	217	435	Extension for reply within third month	\$
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118	1,360	218	680	Extension for reply within fourth month	\$
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128	1,850	228	925	Extension for reply within fifth month	\$
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119	300	219	150	Notice of Appeal	\$
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120	300	220	150	Filing a brief in support of an appeal	\$
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121	260	221	130	Request for oral hearing	\$
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138	1,510	138	1,510	Petition to institute a public use proceeding	\$
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140	110	240	55	Petition to revive - unavoidable	\$
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141	1,210	241	605	Petition to revive - unintentional	\$
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142	1,210	242	605	10 advance copies Utility issue fee (or reissue)	\$
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143	430	243	215	Design issue fee	\$
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144	580	244	290	Plant issue fee	\$
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122	130	122	130	Petitions to the Commissioner	\$
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123	50	123	50	Petitions related to provisional applications	\$
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126	240	126	240	Submission of Information Disclosure Statement	\$
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581	40	581	40	Recording each patent assignment per property (times number of properties)	\$40
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146	690	246	345	Filing a submission after final rejection(37 CFR 1.129(a))	\$
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149	690	249	345	For each additional invention to be examined (37 CFR 1.129(b))	\$
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<b>SIGNATURE:</b> <i>R. Kent Roberts</i>					
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<b>R. Kent Roberts</b> Reg. No. 40,786					
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<b>DATE:</b> 9/22/2000 <b>Telephone:</b> (716) 848-1510				<b>*Reduced by basic filing fee paid</b>	
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**SUBTOTAL (3) \$40**

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Date of Deposit September 22, 2000

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R. Kent Roberts  
Name

*R. Kent Roberts*  
Signature

BFLODOCS:442982

5 PROTECTION DEVICE HAVING A SLEEVE AND  
METHOD OF ASSEMBLING A BATTERY WITH A  
PROTECTION DEVICE AND AN ELECTRICAL COMPONENT

CROSS-REFERENCE TO RELATED APPLICATION

10 This application is a continuation-in-part of  
United States patent application serial number  
09/404,934, which was filed on September 24, 1999.

BACKGROUND OF THE INVENTION

15 1. Field Of The Invention

The present invention relates generally to devices  
for protecting an electrical component. More  
specifically, the present invention relates to a  
protection device for an electrical component connected  
20 to a battery.

2. Discussion of Related Art

In the prior art, there are devices for protecting  
an electrical component, such as a fuse, connected to a  
25 battery. Such prior art devices include a cylindrical  
spacer ring and a terminal cap. The spacer ring is  
positioned on an end of the battery. The electrical  
component resides within the spacer ring, and is

electrically connected to the battery by at least one, and sometimes two electrical, leads. Another electrical lead of the electrical component is connected to the terminal cap.

5           To assemble the battery, the electrical component and the prior art spacer ring, an electrically insulating half-moon disk is placed on the battery header. Next, the electrical component is placed on the half-moon disk. Then the first electrical lead of the  
10       electrical component is welded to a terminal pin of the battery. If provided, a second electrical lead of the electrical component is welded to the header of the battery. Next, the spacer ring is placed on the battery so as to encircle the electrical component. Then the  
15       volume within the spacer ring and above the battery, which is not occupied by the electrical component, is filled with an insulative adhesive material, which may be a polyamide material such as AD-TECH 700 manufactured by Adhesive Technologies, Inc. of Hampton, New Hampshire  
20       (sometimes referred to as "hot-melt"), or which may be an epoxy or silicone material. In doing so, the electrical component is substantially covered with the adhesive material. Only a portion of an electrical lead of the electrical component extends out of and is not  
25       entirely covered with the adhesive material. Next, an

insulating disk is placed partially into the adhesive material, and a terminal cap is placed over the insulating disk, as well as that portion of the adhesive material which is not covered by the insulating disk.

5 Finally, the exposed electrical lead of the electrical component extending from the adhesive material is welded to the terminal cap.

Such prior art assemblies have disadvantages. For example, the terminal cap can easily disconnect from the  
10 rest of the assembly.

#### SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a protection device that will more  
15 securely hold the terminal cap to the rest of the assembly.

The foregoing objective is realized by the present invention, which is a protection device for an electrical component that has a protective housing and a  
20 terminal cap. The protective housing has a base with a contact hole therethrough for accommodating an electrical terminal pin, and has a projecting perimeter wall extending from the base. A sleeve and a terminal cap reside within the perimeter wall, and the terminal  
25 cap is prevented from leaving the protective housing by

the sleeve. For example, at least a portion of the terminal cap is captured between a ledge of the protective housing and the sleeve, and a friction or interference fit between the sleeve and the perimeter wall secures the sleeve within the perimeter wall. The protective housing can be used with a power providing device, such as a battery.

In a method according to the present invention, a battery and an electrical component are assembled. The method begins by providing a battery having a terminal pin. Next, a protective housing is provided, the protective housing has a base with a contact hole therethrough, and has a perimeter wall extending from the base. The protective housing is mounted on the battery so the terminal pin extends into the contact hole. Next, an electrical component is provided on the base and electrically connected to the terminal pin. A terminal cap is provided so that the electrical component resides between the terminal cap and the protective housing, and a sleeve is provided to capture the terminal cap. The electrical component is also connected to the terminal cap.

Other objects and advantages of the present invention will become apparent to those skilled in the art from the following detailed description read in

conjunction with the attached drawings and claims  
appended hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

5           For a fuller understanding of the nature and  
objects of the invention, reference should be made to  
the following detailed description taken in conjunction  
with the accompanying drawings, in which:

Figure 1 is a partially cross sectioned side view  
10 of a protection device according to the present  
invention mounted on a battery;

Figure 2 is an exploded perspective view of the  
protection device and battery similar to that shown in  
Figure 1;

15           Figure 3 is a top view of the protective housing  
shown in Figures 1 and 2;

Figure 4 is a cross sectioned side view of the  
protective housing shown in Figures 1 and 2, mounted on  
a battery (not in cross section), and including a  
20 tinnerman type fastener; and

Figure 5 is a flow chart of a method according to  
the present invention.

BEST MODE FOR CARRYING OUT THE INVENTION

Figures 1 and 2 show a protection device 10 according to the present invention. The protection device 10 includes a protective housing 13 (shown also in Figures 3 and 4) having a base 16. As shown in  
5 Figures 1 through 4, extending from the base 16 is a perimeter wall 19, which may have an inner ledge 22. The inner ledge 22 is spaced from the base 16 a distance 25. The perimeter wall 19 extends generally perpendicularly from the base 16. The base 16 includes  
10 a primary surface 34.

Materials which are suitable for the protective housing 13 include polyetheretherketone, such as that sold under the tradename Victrex (PEEK) 450-G manufactured by Victrex USA Inc. of Westchester,  
15 Pennsylvania, and include a polyamide-imide available from DSM Engineering Plastic Products, Inc. of Reading, Pennsylvania as Torlon 4203 PAI. Also suitable for the protective housing 13 and available from DSM Engineering Plastic Products, Inc. is a material marketed under the  
20 name Ketron™ PEEK 1000. Another material suitable for the protective housing 13 is liquid crystal polymer, commonly known as Zenite, and available from E.I. du Pont de Nemours and Company. Other materials suitable for the protective housing 13 include 6/6 nylon and



glass filled nylon. One such glass filled nylon is sold under the tradename Nylon Zytel 70G33L.

Glass filled nylon is particularly useful when it is desirable to know the temperature of the environment in which the protective housing 13 was placed. It has been shown that glass filled nylon changes color as the exposure temperature increases. By comparing the color of the glass filled nylon to an established color chart, the exposure temperature can be determined.

For example, in one embodiment of the present invention, the protective housing 13 was made from glass filled nylon dyed red with omni rocket red, CC-UN3872, manufactured by the Reed Spectrum company of Holden, Massachusetts. When the environment temperature was at or below 100°C no detectable color change was observed. However, at 125°C the color was medium red, at 150°C the color was dark red, at 175°C the color was darker red, at 200°C the color was black, at 225°C the color was dark black and at 250°C the color was darker black.

Furthermore, at 225°C and above, the appearance of the surface of the protective housing 13 made from glass filled nylon changed in ways other than color. At 225°C, the surface of the protective housing 13 was observed to be shinier and grain boundaries could be observed without the aid of a magnifier. At 250°C, the

surface of the protective housing 13 was shinier and more grain boundaries could be observed. Similar color changes and surface appearance changes have been noted when the protective housing 13 is made from glass filled  
5 nylon that has not been dyed, i.e. has an off-white or light tan color.

The protection device 10 according to the present invention also includes a terminal cap 43 having a  
10 perimeter edge 45, and includes a sleeve 46. The sleeve 46 may be made out of the same material as the protective housing 13. In an embodiment of the present invention, when assembled with the protective housing 13, portions of the terminal cap 43 adjacent to the  
15 perimeter edge 45 are captured between the sleeve 46 and the inner ledge 22. In one embodiment of the present invention, the sleeve 46 is held relative to the protective housing 13 by a friction or an interference fit. In this manner, the terminal cap 43 is prevented  
20 from becoming separated from the protective housing 13.

Figures 1 and 2 show the relative position of an electrical component 47 with respect to the protective housing 13 and the terminal cap 43. The electrical component 47 may include a fuse 49 electrically  
25 connected to a diode 52. The distance 25 is chosen to

allow the electrical component 47 to rest on the primary surface 34 of the base 16 without extending beyond the inner ledge 22. The inner ledge 22 is provided to prevent the terminal cap 43 from contacting any part of the electrical component 47, except for a second lead 57, as described below. The terminal cap 43 is preferably electrically conductive. The second lead 57, is electrically connected to the terminal cap 43, for example, by welding. A terminal pin 58 of a battery 61 extends through a contact hole 64 in the base 16 and is connected to a first lead 67 of the electrical component 47 by welding the first lead 67 to the terminal pin 58.

When manufacturing certain types of batteries 61, electrolyte is introduced through a header 73 of the battery 61 using a fill hole. Once the battery 61 has the proper amount of electrolyte inside, the fill hole is closed, usually by welding a metallic material to the header 73. The metallic material often extends from the header 73 as a metallic projection 76, which is best seen in Figure 2. Although the metallic projection 76 does not extend far beyond the header 73, since the header 73 serves as a supporting surface for the base 16 and it is desirable to have the base 16 firmly supported by the header 73, an accommodating orifice 79 may be

positioned in the base 16 to accommodate the metallic projection 76 therein.

To secure the base 16 to the header 73, a means for fastening may be provided. For example, the base 16 may be fixed relative to the header 73 by placing an adhesive 80 between the base 16 and the header 73. The adhesive 80 may be placed between the base 16 and the header 73 by any of the well known methods, including spraying, pouring, brushing or mixing the adhesive 80 on one or more of the base 16 and the header 73. An acceptable adhesive 80 is cyanoacrylate. Another acceptable adhesive 80 is a pressure sensitive adhesive, such as product number 9500 manufactured by the 3M Company located in Minnetonka, Minnesota.

The present invention may also include a sheet 81 between the base 16 and the header 73. The sheet 81 allows the protection device 10 to be seated firmly on the header 73, even when the header 73 or the base 16 has irregularities in it. The sheet 81 may be made from an aramid insulating paper, such as Nomex 410™, and may be approximately between 0.002 and 0.005 inches thick. To facilitate assembly of the protection device 10 to the header 73, the sheet 81 may have one or more adhesive layers 80A for bonding to the header 73 and/or the base 16. As shown in Figure 2, there are adhesive

layers 80A on opposite sides of the sheet 81, however, the sheet 81 need not have two adhesive layers 80A, and may have only one or no adhesive layers 80A.

5 The adhesive layer 80A may be the adhesive material described above. In addition, the 3M Company manufactures a polyester film tape, product number 9731, that can serve as a sheet 81 and adhesive layers 80A. It should be noted that the thickness of the sheet 81 and the adhesive layers 80A shown in Figure 2 are not  
10 drawn to scale in order that the sheet 81 and the adhesive layers 80A can be more easily understood. In one embodiment of the present invention, the adhesive is selected to withstand temperatures above 200°C.

15 Alternatively, a shrink-wrap may be applied around the battery 61 and the protective housing 13. Such a shrink-wrap is described in U.S. Patent Application 09/404,934, and the description of the shrink wrap therein is incorporated herein by reference. In addition, as shown in Figure 4, the means for fastening  
20 may be a tinnerman type fastener 82 which contacts the base 16, and attaches to a portion of the terminal pin 58 extending through the contact hole 64. The tinnerman fastener 82 may be made from a non-conductive material such as 6/6 nylon.

Figure 5 shows steps of a method according to the present invention in which a battery and an electrical component, such as those described above, are assembled. The method begins by providing (step 100) a battery  
5 having a terminal pin, and providing (step 103) a protective housing having a base with a contact hole therethrough. The base is mounted (step 106) on the battery so that the terminal pin extends into the contact hole. Next, an electrical component is provided  
10 on the base, and the electrical component is electrically connected (step 109) to the terminal pin. Then, a terminal cap is provided (step 118) within the protective housing. Then a sleeve is provided (step 121), and the sleeve is joined to the protective housing  
15 (step 124) to capture the terminal cap between the sleeve and the protective housing. In an alternative embodiment of the method according to the present invention, an insulating material, such as the AD-TECH 700 material described above, is provided (step 115) on  
20 the electrical component to fix the electrical component within the protective housing. It will now be apparent to those skilled in the art that the insulating material need not have an adhesive quality to it because the sleeve will hold the terminal cap within the protective  
25 housing.



What is claimed is:

1. A protection device for protecting an electrical component, comprising:

5 a protective housing having a base with a contact hole therethrough for receiving an electrical terminal pin, and having a projecting perimeter wall extending from the base;

a sleeve joined to the perimeter wall; and

10 a terminal cap captured between the sleeve and the protective housing, wherein the electrical component is permitted to reside between and be protected by the housing and the terminal cap.

15 2. The protection device of claim 1, wherein the base has an orifice therethrough for receiving a projection on a supporting surface which supports the base.

20 3. The protection device of claim 1, further including a means for fastening joined to the base and joined to an electrical terminal pin extending through the contact hole.

25 4. The protection device of claim 3, wherein the means for fastening is a tinnerman fastener.



5. The protection device of claim 1, further comprising an adhesive on the base.

5 6. The protection device of claim 5, further comprising a sheet having the adhesive thereon.

7. The protection device of claim 1, further comprising a sheet between the base and the battery.

10

9. An electrical power providing unit having a battery, an electrical component electrically connected to the battery, and a protection device for protecting the electrical component, the protection device comprising:

15

a protective housing having a base with a contact hole therethrough for receiving a terminal pin of the battery, and having a projecting perimeter wall extending from the base;

20

a sleeve joined to the perimeter wall; and

a terminal cap captured between the sleeve and the protective housing, wherein the electrical component resides between the base and the terminal cap.

10. The power providing unit of claim 9, wherein the base has an orifice therethrough for receiving a projection on the battery.

5 11. The power providing unit of claim 10, wherein the projection is a metallic substance bonded to the battery, and resides at least partially in the orifice.

10 12. The power providing unit of claim 11, wherein the metallic substance is characterized as having been welded to the battery.

15 13. The power providing unit of claim 9, further including a means for fastening joining the base to the terminal pin of the battery.

14. The power providing unit of claim 13, wherein the means for fastening is a tinnerman fastener.

20 15. The power providing unit of claim 9, further comprising an adhesive between the base and the battery.

16. The power providing unit of claim 9, further comprising a sheet between the base and the battery.

17. A method of assembling a battery and an electrical component, comprising:

providing a battery having a terminal pin;

providing a protective housing having a base with a  
5 contact hole therethrough, and a perimeter wall;

placing the protective housing on the battery so  
that the terminal pin extends into the contact hole;

providing an electrical component on the base;

electrically connecting the electrical component to  
10 the terminal pin;

providing a terminal cap within the perimeter wall;

providing a sleeve;

inserting the sleeve within the perimeter wall; and

electrically connecting the terminal cap to the  
15 electrical component.

18. The method of claim 17, further comprising  
providing an insulating material on the electrical  
component.

20

19. The method of claim 17, further comprising  
✓ providing an adhesive between the battery and the  
protective housing.

25

20. The method of claim 17, further comprising providing a compressible sheet of material between the battery and the protective housing.

ABSTRACT

A protection device for an electrical component  
that has a protective housing and a terminal cap. The  
5 protective housing has a base with a contact hole  
therethrough for accommodating an electrical terminal  
pin. A projecting perimeter wall extends from the base.  
A sleeve resides within the perimeter wall, and a  
terminal cap is captured between the sleeve and the  
10 protective housing. A method of assembling a battery  
and an electrical component with such a protection  
device is also disclosed.

15 BFLDOCS:424450\_2 (93\$01)

002260\*E8629960

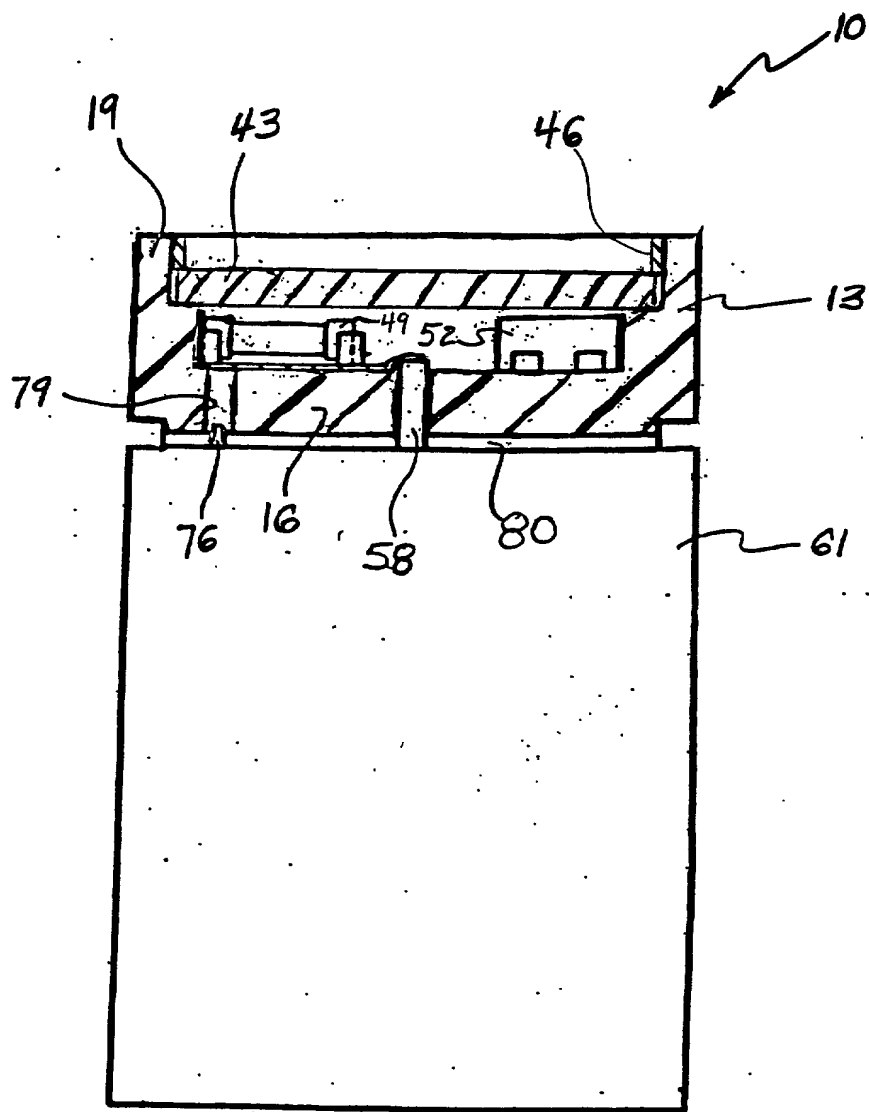


FIG. 1

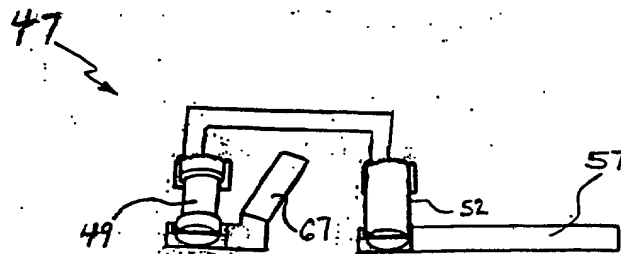
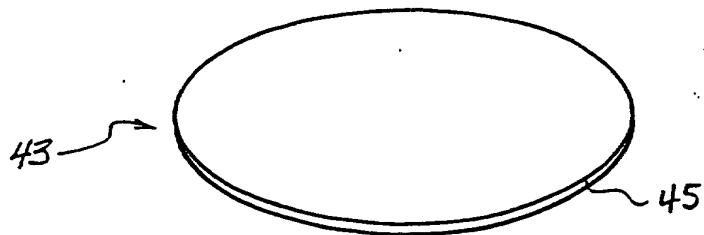
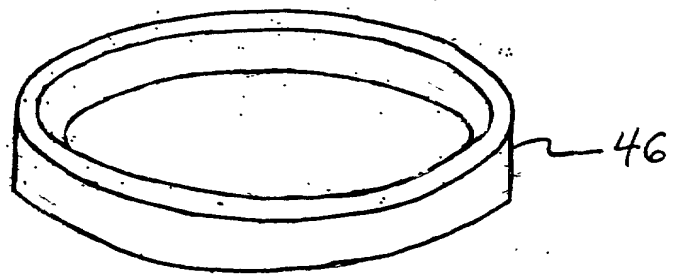
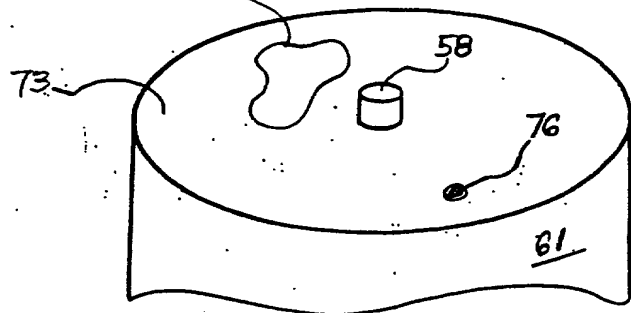
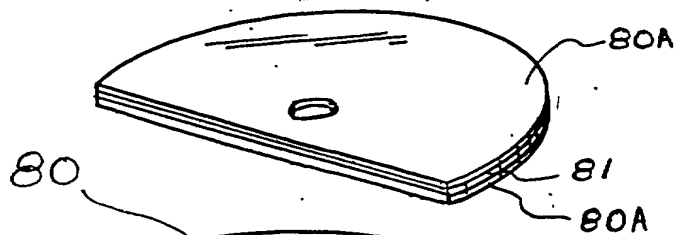
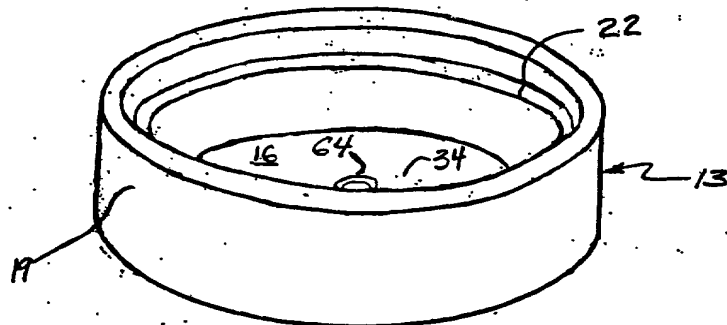


FIG. 2

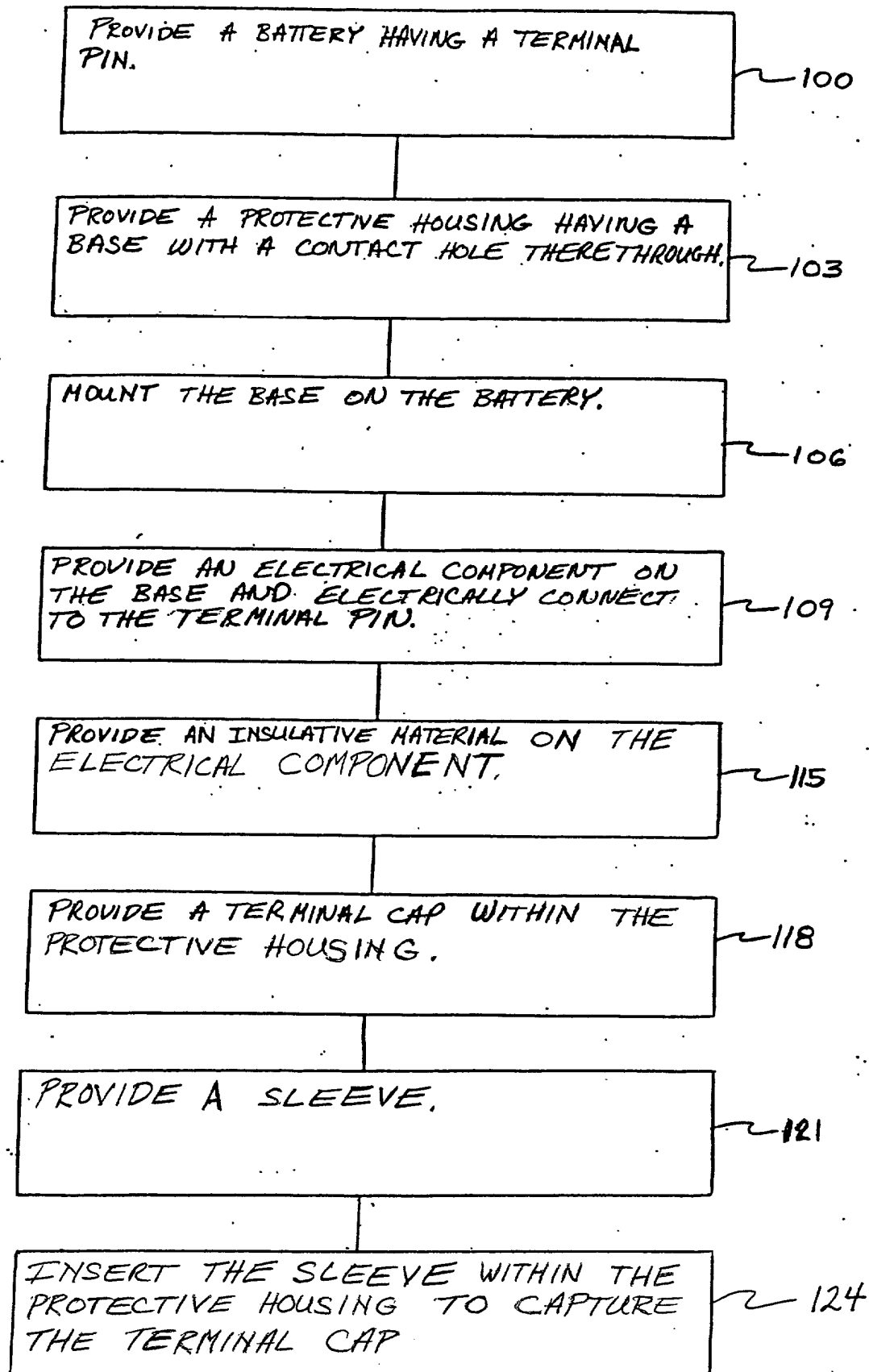


A cross-sectional view of a device assembly 13. The assembly includes a top housing 19 and a bottom housing 16. A central component 22 is positioned between the two housings. A side component 34 is attached to the right side of the top housing. A small rectangular component 58 is located in the center of the bottom housing. A horizontal component 79 is positioned between the top and bottom housings, with a small rectangular component 76 on its left end and a larger rectangular component 82 on its right end. A small rectangular component 25 is shown to the left of the top housing 19.

FIG. 4



FIG. 5



**DECLARATION FOR UTILITY OR  
DESIGN  
PATENT APPLICATION  
(37 CFR 1.63)**

Attorney Docket Number 04645.0664

First Named Inventor Zayatz

**COMPLETE IF KNOWN**

Application Number

Filing Date 9/22/2000

Group Art Unit

Examiner Name

☒ Declaration Submitted with Initial Filing **OR** ☐ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16(e)) required)

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Protection Device Having A Sleeve And Method Of Assembling A Battery With A Protection Device And An Electrical Component

the specification of which  
☒ is attached hereto  
**OR**

☐ was filed on (MM/DD/YYYY) [ ] as United States Application Number or PCT International Application Number [ ] and was amended on (MM/DD/YYYY) [ ] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application (Numbers)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES NO	
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

**DECLARATION - Utility or Design Patent Application**

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
09/404,934	09/24/1999	

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Customer Number  
OR



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☒ Registered practitioner's name/registration number listed below

Name	Registration Number	Name	Registration Number
R. Kent Roberts	40,786	Ranjana Kadle	40,041
Martin G. Linihan	24,926	Michael F. Scalise	34,920
Kevin D. McCarthy	35,278	Daniel C. Oliverio	33,435
David L. Principe	39,336	Edwin T. Bean, Jr.	16,639

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto

Direct all correspondence to: ☐ Customer Number or Bar Code Label  OR ☒ Correspondence address below

Name	R. Kent Roberts				
Address	Hodgson, Russ, Andrews, Woods & Goodyear LLP				
Address	One M&T Plaza, Suite 2000				
City	Buffalo	State	New York	ZIP	14203-2391
Country	United States	Telephone	(716) 856-4000	Fax	(716) 849-0349

Name of Sole or First Inventor:

☐ A petition has been filed for this unsigned inventor

Given Name (first and middle [if any])		Family Name or Surname					
Robert		Zayatz					
Inventor's Signature					Date	9/21/00	
Residence: City	North Tonawanda	State	New York	Country	USA	Citizenship	USA
Post Office Address	433 North Avenue						
Post Office Address							
City	North Tonawanda	State	New York	ZIP	14120	Country	USA

☐ Additional inventors are being named on the \_\_\_\_\_ supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto.